

Quiz #1

1. Briefly describe how the Internet's connection-oriented service provides reliable transport. It uses TCP; it is a connection-oriented; It has error checking, Receive & transmission checking.
2. What advantage does a packet switched network have over a circuit-switched network?
 - Packet switch can send a transmission multiple routes to set to the destination.
 - Circuit is a straight shot over one route to get to the destination.
 - So if a system goes down the packet switch can switch routes.
3. What are the two types of services that the internet provides to its application? Connection oriented and connectionless.
4. What are some of the physical media that Ethernet can run over? Coax cable, copper cable, and fiber optic.
5. TCP addresses have two logical parts a network and a host.
6. Name at least two of the Open Network Architecture principles. Decentralised control and State less router.
7. The standard for such protocols such as TCP, IP, SMTP are defined in the RFC.
8. What service has no flow control or congestion control? UDP (User Datagram Transport)
9. Each host or read system on the Internet required a unique IP address.

Quiz #2.

1. Below is a list of devices. At what layer does each device operate?
 - Bridge 2
 - Repeater 1
 - Router 3
 - Switch 2
 - Hub(shared) 1
2. How many workstations can simultaneously send frames on an Ethernet segment? 1
3. Bridging loops are prevented by what mechanism? Bridge ID
4. Briefly, explain the Basis Access Contention Method. Listen and if no one transmit, then end but listen while send.
5. How long and why must a host wait on the wire before it can transmit? 9.6 ms
6. Contention Access Control works well in what type of traffic? Bursting traffic.
7. Ethernet is defined as a bus technology, but usually installed as a star topology.
8. The minimum Ethernet frame size is 64 bytes (includes four byte frame check sequence) And the maximum Ethernet frame size is 1518 bytes.
9. The purpose of the preamble bit pattern in an Ethernet frame is to? Synchronize the clock.
10. Runt frames are produced as the result of what? Made by collision.

Quiz #3 CHAPTER 214

1. A gratuitous ARP occurs when a host sends an ARP request looking for its own IP address.
2. A proxy ARP occurs when a router answer an ARP request on one of its networks for a host on another of its networks.
3. Why is an ARP query sent within a broadcast frame? Send construct an ARP query to the MAC broadcast address.
4. Why is an ARP response sent within a frame with a specific LAN address? Sending node must give both the IP address Mac address of the receiver (222.222.222:222)
5. When a host on a network receives an ARP query what does the host do with the ARP query? Each has checks to see if its IP address matches the destination IP address in the ARP packet.
6. ARP maps what addresses? Between 32 bit IP/48 bit network address.
7. When a host wants to send data to another host on a local network, what are the steps it must take?
 - 1) Broadcast a message to all hosts
 - 2) All host pick up broadcast & compare their address to the request one.
 - 3) The host that matches send a respond.
 - 4) ARP table is updated & sender sends data to receiver.
8. What is the purpose of RARP? To map IP/hardware between diskless workstation.
9. Is a separate frame type field required for RARP? No
10. Could the same frame type value be used for ARP and RARP? Explain Yes, you could use it if you have the correct opcode.

Quiz #4

1. What is the 32-bit binary equivalent of IP address 223.13.27?
 11011010-11010000000000000000000000000000
2. Consider a router with three interfaces. Suppose all three interfaces use class C addresses. Will the IP addresses of the three interfaces necessarily have the same first 8 bit? Explain.
 No, class C identify by first 3 bits
3. Describe the differences between static and dynamic routing.
 Dynamic - the router sends the datagrams anyway that gets to the destination.
 Static - there is only one designated route for the datagrams to travel.
4. What functions does IP perform? Routing & Delivery of datagrams.
5. What class A Network ID is used for the loopback (localhost) address? 127.0.0.0
6. What does the MTU of an Ethernet internet have to do with fragmentation?
 Determine max packet size
7. How does a host (destination) know it has received the last fragment of a datagram?
 The flag in the datagram will be a 0.
8. What is the purpose/function of the DEFAULT route?
 If no other route, then use it this way.
9. What is the purpose/function of a Network Address Translation (NAT)?
 Change non-routable ID to a routable ID
10. All classful network addresses A, B, and C are divided into two parts. The network portion and the host portion.

Quiz #5

1. 3 binary digits are required to define eight subnets. **3**
2. Specify the extended-network-prefix that allows the creation of 8 subnets.

3. Express the subnets in binary format and dotted decimal notation:

10000100.00101101.00000000.00000000
 00100000.00000000:
 01000000.00000000:
 01100000.00000000:
 10000000.00000000:
 10100000.00000000:
 11000000.00000000:
 11100000.00000000

Handwritten annotations: 132, 45, 128, 32, 160, 192, 224

4. List the range of host address that can be assigned to Subnet #3. (132.45.96.0/19).
 10000100.00101101.01100000.00000001/19
 01100000.00000010/19
 01111111.1111101/19
 01111111.111110/19

5. What is the broadcast address for subnet #3 (132.45.96.0/19).
 10000100.00101101.01111111.11111111
6. Aggregate the following set of (4) IP/24 network addresses to the highest degree possible.
 212.56.132.0/24
 212.56.133.0/24
 212.56.134.0/24
 212.56.135.0/24

Aggregate the following set of (4) IP /24 network addresses to the highest degree possible.
 212.56.146.0/24
 212.56.147.0/24
 212.56.148.0/24
 212.56.149.0/24
 11010100.0111000.10010010.1111111

Handwritten annotations: 128, 16, 12, 3, 128, 32, 160, 192, 224

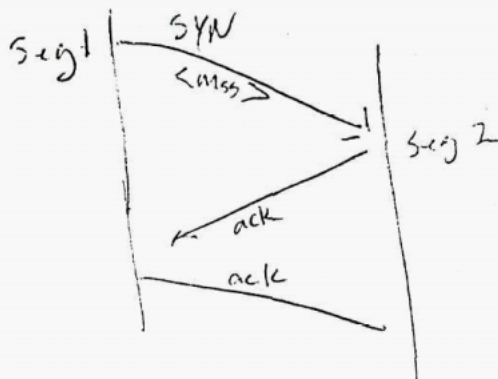
Handwritten calculations:
 32+16+8=56
 128+4=132
 110110100.00111000.10000100.255

Handwritten calculations:
 32+8+4+1
 00101101
 1000100
 128+4=132

Quiz #6

1. Domain name clients are known as what and the clients can simply be implemented as what functions? Resolver
2. How is a fully qualified domain name written?
.enr.csufresno.edu
3. What are 3 types (kind) domain name servers?
Primary master, secondary master, and cache only server.
4. Why do HTTP, FTP, SMTP, POP3 and IMAP run on top of TCP rather than UDP?
TCP more reliable.
5. Is it possible that an organization's Web server and mail server have exactly the same alias for a hostname? No
6. For a communication session between two hosts, how do you determine which host is the client and which host is the server? Port#20 client and port #21 server
7. What three major events (drawbacks) led to the creation of the domain name system implementation from the original "hosts.txt" file maintained by SRI?
Duplicate addresses, TCP, Fast Growth, Slow transmission.
8. Name three top level domains? .com .edu .gov
8. A complete FTP service includes a client and a server.
9. Which protocol allows a user (client) at a terminal to access a remote host (server)? Telnet

1. The maximum amount of data in a TCP segment is limited by the 576 bytes. *Max seg Size*
2. What is the reason to immediately send single cumulative ACK. ACKing both in-order segments? Prevent sender from sending out of order packet.
3. The receive window variable is used for what purpose?
to speed up the transfer of the data.
4. What determines the timeout values? Round trip time.
5. Why is different ISN number chosen for each TCP connection?
So the packets know which connection they belong to.
6. TCP uses only positive acknowledgements; therefore it lacks the capability of selective or negative acknowledgements?
7. How does TCP maintain a reliable data transfer? Timeout acknowledge, checksum header.
8. Client and server must establish what type of TCP connection before data is exchanged?
3 way handshake
9. Describe the three-way handshake in detail. Make up your own ISN and ACK numbers.
1) Client send SYN. 2) server send ACK. 3) Client send ISN. 4) server ACK with ISN+1



SMTP
Traceroute
Route

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